



Lessard-Sams Outdoor Heritage Council

DNR Aquatic Habitat Restoration and Enhancement - Phase 5 Laws of Minnesota 2022 Accomplishment Plan

General Information

Date: 11/18/2022

Project Title: DNR Aquatic Habitat Restoration and Enhancement - Phase 5

Funds Recommended: \$5,177,000

Legislative Citation: ML 2022, Ch. 77, Art. 1, Sec. 2, subd. 5(n)

Appropriation Language: \$5,177,000 the second year is to the commissioner of natural resources to restore and enhance aquatic habitat in degraded streams and aquatic management areas and to facilitate fish passage. A list of proposed land restorations and enhancements must be provided as part of the required accomplishment plan.

Manager Information

Manager's Name: Jamison Wendel

Title: Stream Habitat Supervisor

Organization: Minnesota DNR

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Location Information

County Location(s): Otter Tail, Clearwater, Le Sueur, Roseau, St. Louis, Nicollet, Big Stone and Clay.

Eco regions in which work will take place:

- Northern Forest
- Forest / Prairie Transition
- Prairie
- Metro / Urban

Activity types:

- Restore

- Enhance

Priority resources addressed by activity:

- Habitat

Narrative

Abstract

Diverse habitat is critical to sustaining quality fish populations in lakes and rivers. The Minnesota Department of Natural Resources (MNDNR) will complete nine fish passage projects to restore habitat connectivity for fish and other aquatic life, and restore reaches of five different rivers, creating nine miles of diverse aquatic habitat. Though the actual footprint of fish passage projects is relatively small, these projects will reconnect over 10,000 acres of lake and river habitat. Aquatic habitat projects were selected from a statewide list, prioritized by factors such as ecological benefit, scale of impact, urgency of completion, and local support.

Design and Scope of Work

The Minnesota Department of Natural Resources (MNDNR) annually updates a statewide list of stream habitat projects. Project proposals come both from MNDNR staff and from partner organizations. Projects are prioritized based on scale-of-impact, urgency, local support, and critical habitat for rare species. Based on this list, MNDNR and our partners are proposing nine fish passage projects and four channel restorations, leveraging a confirmed \$4,016,000 from a variety of federal, state, and local sources.

Access to diverse habitats is critical for fish and other aquatic organisms to complete various life stages. The habitats they use at different life stages may all vary widely. These habitats can be fairly unique, such as high-gradient riffles favored by many spawning fish, and may be miles apart. When dams or other obstructions prevent aquatic life from reaching ideal habitat, they are forced to use less optimal locations that can reduce their success. In some cases this leads to the complete loss of sensitive species upstream of a barrier. Research by MNDNR River Ecologist Luther Aadland found that on average, species richness declined by 37% upstream of near complete barriers to fish passage. Subsequent removal of 11 barriers in this study resulted in upstream recolonization of an average of 66% of the species that had been absent.

Modifying or removing the barriers through our nine proposed fish passage projects would have a total footprint of 9 acres, but create upstream access to over 10,000 acres of lake and river habitat. Restoring fish passage will benefit fish such as Walleye and Brook Trout present in these rivers, as well as five mussel species classified as threatened or special concern. Restoring connectivity also expands fishing opportunities by acting as a conduit for recolonization following catastrophic events such as drought that may happen in one portion of a watershed.

Meandering rivers and streams naturally form diverse habitat. Deeper, slower habitat is created by scour into the bed of the river around the outside of bends, while faster water and a rockier bottom is found in the straight sections in between. Wood, overhanging vegetation, and boulders serve as cover and current breaks for fish. In degraded sections of river, these natural processes are disrupted. Some reaches have been artificially straightened, preventing the meandering that forms diverse habitat. In other places, streams have become surrounded by tall banks that prevent high flows from spilling out onto a floodplain. When floods are trapped within the stream channel, the river erodes the banks. This not only mobilizes tons of sediment that degrades downstream habitat, but results in a wide, shallow channel during low-flow periods that is avoided by adult fish. Channel restoration projects will utilize reference locations with high-quality habitat to improve habitat. Working with partners, we will restore and enhance 8.1 miles of habitat on five streams.

How does the plan address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species?

The Phelps Mill and Rock Dam projects are key components to Lake Sturgeon restoration efforts in the Red River basin. Lake Sturgeon are an important game species and also listed as a species of Special Concern in Minnesota. Dams that blocked migrations to spawning habitat, overharvest, and poor water quality contributed to the extirpation of Lake Sturgeon from the Red River basin in the early 1900's. Lake Sturgeon reintroduction in the Red River basin has been ongoing for 20 years and mature fish are being captured during spring surveys now. However, barriers such as these two dams block upstream migrations of mature Lake Sturgeon on the Otter Tail and Red Lake River. Removing these barriers to fish passage is key to restoring a naturally reproducing population of Lake Sturgeon in the Red River basin.

The Buffalo River culverts fish passage projects are known to have rare mussel species in the vicinity. These projects have the potential to benefit those species by allowing their upstream movement past the barriers. Juvenile mussels use fish as a host species to move to new areas within the watershed. Once they mature, they release from the host and colonized the new area. Restoration of fish passage will help to return fish and mussel diversity that was present upstream of dams prior to their construction. Potential to benefit rare species is one of the criteria by which stream projects are ranked in this proposal.

There are 68 species of greatest conservation need that utilize headwaters to large streams, including birds, turtles, frogs, fish, and insects. Stream habitat projects are not designed with one species in mind, but instead are intended to benefit multiple functions and habitats of the river both within the stream and in the riparian area, which will have benefits for rare species.

Describe how the plan uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

Science-based targeting was used to identify, design, and prioritize restoration and enhancement projects included in this proposal. Projects were prioritized based on multiple criteria, including scale-of-impact, critical habitat, technical feasibility, and compatibility with other resource initiatives. Projects that benefit or reconnect areas of high or outstanding biological significance or lakes of biological significance are targeted and prioritized.

Our proposal features projects intended to reduce fragmentation. Dams and other obstructions in rivers fragment areas of suitable habitat, similar to when pieces of prairie are separated by large areas of row-crop farmland. By removing or modifying barriers in streams, we will allow fish and other aquatic life to move between different patches of habitat that may be critical for their life-processes, such as spawning. Connectivity also expands fishing opportunities by acting as a conduit for recolonization after catastrophic events such as drought happen in one portion of a watershed. We have prioritized fish passage projects that connect large areas of high-quality habitat.

Similarly, our stream channel restoration projects target reaches of river where habitat is poor due to past alterations. Lengths of poor habitat can themselves act as barriers to animal movement, where a fish may choose not to migrate through a reach without adequate depth or cover to reach more suitable habitat upstream. Restoring the stream channel removes that "barrier" of poor habitat that fragments the stream. In the process, we also create high-quality habitat within the formerly degraded reach.

Which two sections of the Minnesota Statewide Conservation and Preservation Plan are most applicable to this project?

- H5 Restore land, wetlands and wetland-associated watersheds

- H6 Protect and restore critical in-water habitat of lakes and streams

Which two other plans are addressed in this program?

- Minnesota DNR Strategic Conservation Agenda
- Red River of the North Fisheries Management Plan

Which LSOHC section priorities are addressed in this program?

Forest / Prairie Transition

- Protect, enhance, and restore wild rice wetlands, shallow lakes, wetland/grassland complexes, aspen parklands, and shoreland that provide critical habitat for game and nongame wildlife

Metro / Urban

- Enhance and restore coldwater fisheries systems

Northern Forest

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

Prairie

- Protect, enhance, or restore existing wetland/upland complexes, or convert agricultural lands to new wetland/upland habitat complexes

Does this program include leveraged funding?

Yes

Explain the leverage:

The Whiskey Creek project has a variety of federal, state, and local leverage, including EPA 319, Great Plains Fish Habitat, BWSR, NWQI, CREP, and Buffalo Red River Watershed District. The total amount of leverage included in this proposal is \$2,341,000.

For the Whetstone River project, \$1,200,000 general obligation bonding funds for flood hazard mitigation will contribute to the overall project.

US Fish and Wildlife Service is contributing \$300,000 to the Phelps Dam project.

The Roseau River Watershed District and Red River Watershed Management Board are contributing \$175,000 to complete the Roseau River project.

All leverage committed to projects included in this proposal are cash commitments.

Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

This request is an acceleration of DNR aquatic habitat work to a level not attainable but for the appropriation.

Non-OHF Appropriations

| Year | Source | Amount |
|------|---|-------------|
| 2018 | Game and Fish, Heritage Enhancement, and Federal Grants | \$4,094,900 |
| 2017 | Game and Fish, Heritage Enhancement, and Federal Grants | \$3,681,500 |
| 2015 | Game and Fish, Heritage Enhancement, and Federal Grants | \$3,596,000 |
| 2016 | Game and Fish, Heritage Enhancement, and Federal Grants | \$3,267,000 |
| 2019 | Game and Fish, Heritage Enhancement, and Federal Grants | \$3,943,700 |

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

MNDNR has multiple potential avenues that could be used for ongoing maintenance of projects, including the Game and Fish fund which is supported by license sales, the Heritage Enhancement account funded by taxes on lottery tickets, funds raised through the sale of Trout Stamps, people who volunteer to help the department with projects, and future potential OHF appropriations.

Actions to Maintain Project Outcomes

| Year | Source of Funds | Step 1 | Step 2 | Step 3 |
|--------|-----------------|-----------------|-------------------|-------------------------------------|
| Annual | Game and Fish | Inspect Project | Control Invasives | Make instream adjustments as needed |

How will the program directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities:

The DNR Aquatic Habitat Restoration and Enhancement proposal has the following specific ties to BIPOC and diverse communities:

- Projects included in this proposal provide benefits at the watershed scale. These benefits extend well beyond the footprint of each individual project and benefit all Minnesotans.
- Tribal partners have been significant partners in efforts to restore Lake Sturgeon in the Red River basin. Multiple projects included in this proposal contribute to these efforts.
- DNR has closely coordinated with Red Lake Band on the Rock Dam project. The band is strongly supportive of this initiative and a Letter of Support from the Red Lake Band is attached to this proposal.

DNR's OHF projects aim to serve all Minnesotans. At the same time, we are bringing more focus in all our work to BIPOC and diverse communities. The Minnesota DNR has adopted advancing diversity, equity and inclusion (DEI) as a key priority in its 2020-22 strategic plan. The plan focuses on increasing the cultural competence of our staff, creating a workforce that is reflective of Minnesota, continuing to strengthen tribal consultation and building partnerships with diverse communities.

The OHF funds high quality habitat projects that provide ecosystem services like clean water and carbon sequestration that support environmental justice. OHF also supports public access and recreational opportunities on these lands. OHF projects and outcomes benefit BIPOC and diverse communities through recreational opportunities that are close-to-home, culturally responsive and accessible to Minnesotans with disabilities.

The DNR has diversity, equity and inclusion strategies that benefit all OHF projects:

- Multilingual and culturally specific hunting and fishing education programs take place on public lands.
- All hiring is equal opportunity, affirmative action, and veteran-friendly. Contracting seeks out Targeted

Group, Economically Disadvantaged and Veteran-Owned businesses.

- Public engagement seeks out BIPOC voices and involves diverse communities. Outreach and marketing of projects has this focus as well.
- Partnerships are at the center of all projects. Tribes in particular are consulted in all pertinent areas of the DNR's work, under EO 19-24.

Activity Details

Requirements

If funded, this program will meet all applicable criteria set forth in MS 97A.056?

Yes

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?

Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15 or on lands to be acquired in this program?

Yes

Where does the activity take place?

- AMA
- County/Municipal
- Public Waters
- WMA
- Other : Tribal Lands

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?

No

Timeline

| Activity Name | Estimated Completion Date |
|--|---------------------------|
| Vegetation maintenance on fish passage and channel restoration projects | June 2026 |
| Design of fish passage and channel restoration projects | March 2023 |
| Construction of fish passage and channel restoration projects | September 2025 |
| Permitting and environmental review of fish passage and channel restoration projects | December 2023 |

Date of Final Report Submission: 10/31/2027

Availability of Appropriation: Subd. 7. Availability of Appropriation

(a) Money appropriated in this section may not be spent on activities unless they are directly related to and necessary for a specific appropriation and are specified in the accomplishment plan approved by the Lessard-Sams Outdoor Heritage Council. Money appropriated in this section must not be spent on indirect costs or other institutional overhead charges that are not directly related to and necessary for a specific appropriation. Money appropriated to acquire land in fee may be used to restore, enhance, and provide for public use of the land

acquired with the appropriation. Public-use facilities must have a minimal impact on habitat in acquired lands.

(b) Money appropriated in this section is available as follows:

(1) money appropriated for acquiring real property is available until June 30, 2026;

(2) money appropriated for restoring and enhancing land acquired with an appropriation in this act is available for four years after the acquisition date with a maximum end date of June 30, 2030;

(3) money appropriated for restoring or enhancing other land is available until June 30, 2027;

(4) notwithstanding clauses (1) to (3), money appropriated for a project that receives at least 15 percent of its funding from federal funds is available until a date sufficient to match the availability of federal funding to a maximum of six years if the federal funding was confirmed and included in the original approved draft accomplishment plan; and

(5) money appropriated for other projects is available until the end of the fiscal year in which it is appropriated.

Budget

Budget reallocations up to 10% do not require an amendment to the Accomplishment Plan.

Totals

| Item | Funding Request | Antic. Leverage | Leverage Source | Total |
|----------------------------|--------------------|--------------------|---|--------------------|
| Personnel | \$273,800 | - | - | \$273,800 |
| Contracts | \$4,859,400 | \$2,542,000 | Buffalo Red River Watershed District, NRCS, United States Fish and Wildlife Service, Roseau River Watershed District, flood hazard mitigation funds, Red River Watershed Management Board | \$7,401,400 |
| Fee Acquisition w/ PILT | - | - | - | - |
| Fee Acquisition w/o PILT | - | - | - | - |
| Easement Acquisition | - | - | - | - |
| Easement Stewardship | - | - | - | - |
| Travel | \$8,900 | - | - | \$8,900 |
| Professional Services | \$13,000 | - | - | \$13,000 |
| Direct Support Services | \$17,500 | - | - | \$17,500 |
| DNR Land Acquisition Costs | - | - | - | - |
| Capital Equipment | - | - | - | - |
| Other Equipment/Tools | - | - | - | - |
| Supplies/Materials | \$4,400 | - | - | \$4,400 |
| DNR IDP | - | - | - | - |
| Grand Total | \$5,177,000 | \$2,542,000 | - | \$7,719,000 |

Personnel

| Position | Annual FTE | Years Working | Funding Request | Antic. Leverage | Leverage Source | Total |
|--------------------------------|------------|---------------|-----------------|-----------------|-----------------|-----------|
| Stream Restoration Interns | 0.5 | 1.0 | \$32,500 | - | - | \$32,500 |
| Stream Restoration Coordinator | 1.0 | 1.6 | \$241,300 | - | - | \$241,300 |

Amount of Request: \$5,177,000

Amount of Leverage: \$2,542,000

Leverage as a percent of the Request: 49.1%

DSS + Personnel: \$291,300

As a % of the total request: 5.63%

Easement Stewardship: -

As a % of the Easement Acquisition: -

How will this program accommodate the reduced appropriation recommendation from the original proposed requested amount?

We will implement stream projects based on our prioritized list, completing the highest priority projects with available funding.

Describe and explain leverage source and confirmation of funds:

Whiskey Creek project: EPA 319, Great Plains Fish Habitat, BWSR, NWQI, CREP, and Buffalo Red River Watershed District

Whetstone River project: General obligation bonding funds for flood hazard mitigation

Phelps Mill Dam project: Fish and Wildlife Service

Personnel

Has funding for these positions been requested in the past?

Yes

Please explain the overlap of past and future staffing and position levels previously received and how that is coordinated over multiple years?

Funding for the positions included in this request were previously funded in our ML20 appropriation. Once the personnel funds from that appropriation are extinguished, we will shift to charging salary to this appropriation.

Contracts

What is included in the contracts line?

100% of contracts are for R/E work.

Travel

Does the amount in the travel line include equipment/vehicle rental?

No

Explain the amount in the travel line outside of traditional travel costs of mileage, food, and lodging

All travel line costs will be used for mileage, food, and lodging.

I understand and agree that lodging, meals, and mileage must comply with the current MMB Commissioner Plan:

Yes

Direct Support Services

How did you determine which portions of the Direct Support Services of your shared support services is direct to this program?

DNR calculates the program's fair share to pay for support costs directly related to and necessary for the appropriation, and an internal Service Level Agreement (contract) guarantees each program will receive the services for the calculated amount.

Federal Funds

Do you anticipate federal funds as a match for this program?

No

Output Tables**Acres by Resource Type (Table 1)**

| Type | Wetland | Prairie | Forest | Habitat | Total Acres |
|--|---------|---------|--------|-----------|-------------|
| Restore | - | - | - | 46 | 46 |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | 2 | 2 |
| Total | - | - | - | 48 | 48 |

Total Requested Funding by Resource Type (Table 2)

| Type | Wetland | Prairie | Forest | Habitat | Total Funding |
|--|---------|---------|--------|--------------------|--------------------|
| Restore | - | - | - | \$4,130,200 | \$4,130,200 |
| Protect in Fee with State PILT Liability | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | - | - | \$1,046,800 | \$1,046,800 |
| Total | - | - | - | \$5,177,000 | \$5,177,000 |

Acres within each Ecological Section (Table 3)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Acres |
|--|-------------|----------------|-----------|-----------|-----------|-------------|
| Restore | - | - | - | 46 | - | 46 |
| Protect in Fee with State PILT Liability | - | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - | - |
| Enhance | - | 1 | - | 1 | - | 2 |
| Total | - | 1 | - | 47 | - | 48 |

Total Requested Funding within each Ecological Section (Table 4)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest | Total Funding |
|--|-------------|------------------|-----------|--------------------|-----------|--------------------|
| Restore | - | - | - | \$4,130,200 | - | \$4,130,200 |
| Protect in Fee with State PILT Liability | - | - | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - | - |
| Enhance | - | \$918,800 | - | \$128,000 | - | \$1,046,800 |
| Total | - | \$918,800 | - | \$4,258,200 | - | \$5,177,000 |

Average Cost per Acre by Resource Type (Table 5)

| Type | Wetland | Prairie | Forest | Habitat |
|--|---------|---------|--------|-----------|
| Restore | - | - | - | \$89,786 |
| Protect in Fee with State PILT Liability | - | - | - | - |
| Protect in Fee w/o State PILT Liability | - | - | - | - |
| Protect in Easement | - | - | - | - |
| Enhance | - | - | - | \$523,400 |

Average Cost per Acre by Ecological Section (Table 6)

| Type | Metro/Urban | Forest/Prairie | SE Forest | Prairie | N. Forest |
|--|-------------|----------------|-----------|----------|-----------|
| Restore | - | - | - | \$89,786 | - |
| Protect in Fee with State PILT Liability | - | - | - | - | - |

| | | | | | |
|--|---|-----------|---|-----------|---|
| Protect in Fee w/o State PILT Liability | - | - | - | - | - |
| Protect in Easement | - | - | - | - | - |
| Enhance | - | \$918,800 | - | \$128,000 | - |

Target Lake/Stream/River Feet or Miles

3.8

Outcomes

Programs in forest-prairie transition region:

- Rivers and streams provide corridors of habitat including intact areas of forest cover in the east and large wetland/upland complexes in the west ~ *Both MNDNR and PCA conduct periodic surveys of the Otter Tail River watershed. For the Phelps Mill Dam project, we will compare warmwater fish communities before and after project completion. We will also compare catch rates for critical species before and after project completion as indicators of population density changes.*

Programs in metropolitan urbanizing region:

- Improved aquatic habitat indicators ~ *For the Tischer Creek Dam project, we will evaluate instream habitat and use routine fish surveys to gauge changes to the fish community to compare to pre-project data.*

Programs in the northern forest region:

- Improved aquatic habitat indicators ~ *For the Kingsbury Creek project, we will evaluate instream habitat as well as brook trout populations to assess success. For the Rock Dam project, warmwater fish communities will be assessed before and after project completion.*

Programs in prairie region:

- Other ~ *The Whiskey Creek and Roseau River channel restoration projects in this region will improve in-channel and riparian habitat. We will use metrics that evaluate instream and floodplain habitat to assess our success. For the Buffalo River, Seven Mile Creek, and Lake Sakatah fish passage projects, we will use routine fish surveys to gauge changes to the fish community, and compare with pre-project data. For the Whetstone Creek project, we will evaluate instream habitat and use routine fish surveys to gauge changes to the fish community to compare to pre-project data.*

Parcels

For restoration and enhancement programs ONLY: Managers may add, delete, and substitute projects on this parcel list based upon need, readiness, cost, opportunity, and/or urgency so long as the substitute parcel/project forwards the constitutional objectives of this program in the Project Scope table of this accomplishment plan. The final accomplishment plan report will include the final parcel list.

Parcel Information

Sign-up Criteria?

No

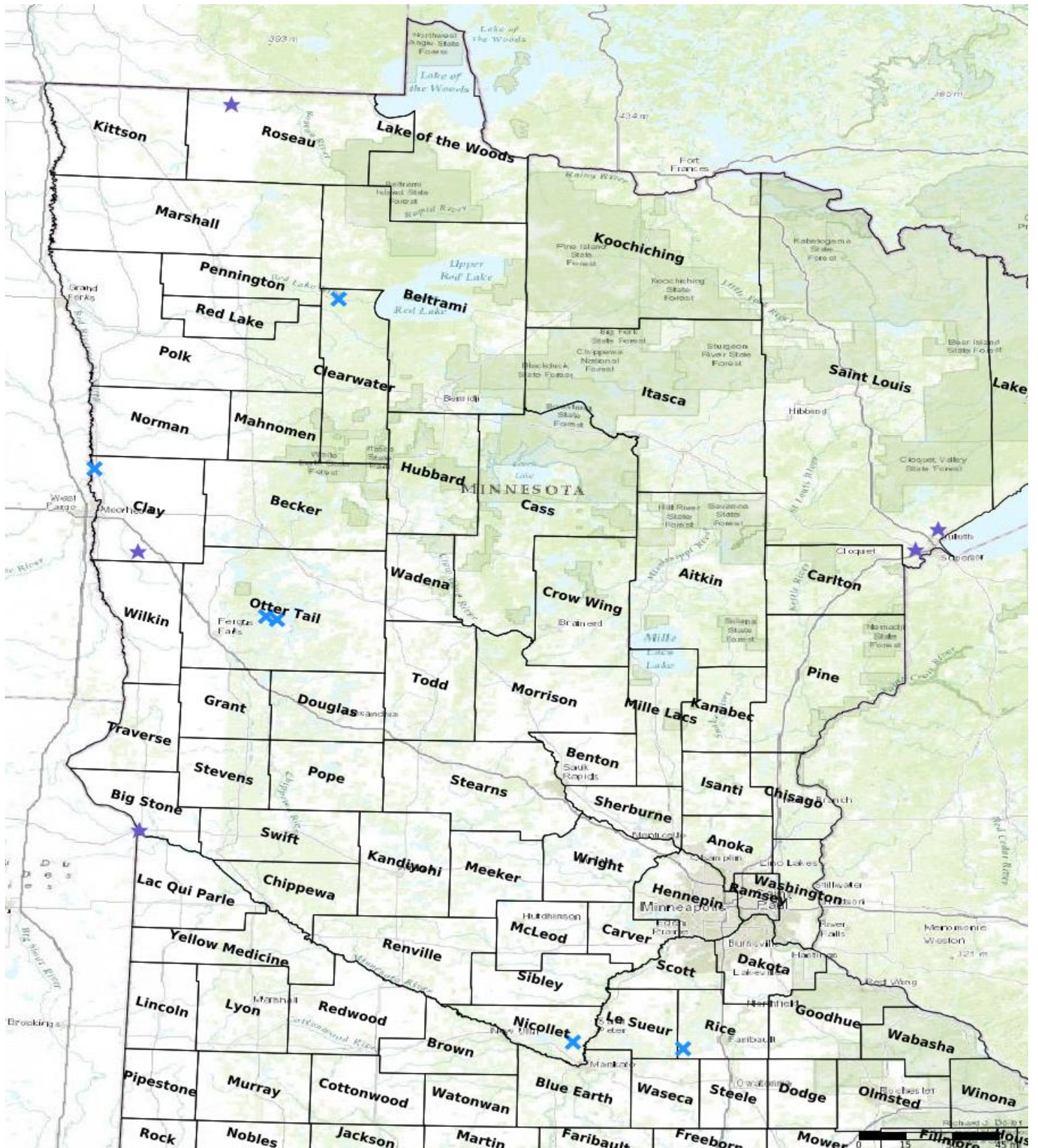
Explain the process used to identify, prioritize, and select the parcels on your list:

MN DNR uses a prioritized list to select stream habitat projects for submission. Project submissions are solicited from MN DNR staff as well as partner organizations. Criteria used to rank projects includes the scale of impact, critical habitat for rare species, the urgency of completing the project, feasibility, and local support. From that list we select the highest-ranked projects that we feel could be completed during the life of the OHF appropriation.

Restore / Enhance Parcels

| Name | County | TRDS | Acres | Est Cost | Existing Protection |
|--------------------------------------|------------|----------|-------|-------------|---------------------|
| Whetstone River | Big Stone | 12146216 | 21 | \$2,300,000 | Yes |
| Buffalo River | Clay | 14248230 | 3 | \$1,500,000 | Yes |
| Whiskey Creek | Clay | 13746218 | 23 | \$588,000 | Yes |
| Rock Dam - Red Lake River | Clearwater | 15238223 | 1 | \$350,000 | Yes |
| Canon River - Lower Lake Sakatah Dam | Le Sueur | 10922217 | 1 | \$300,000 | Yes |
| Seven Mile Creek | Nicollet | 10927204 | 1 | \$400,000 | Yes |
| Otter Tail River | Otter Tail | 13340205 | 4 | \$115,000 | Yes |
| Otter Tail River - Phelps Mill Dam | Otter Tail | 13441235 | 1 | \$860,000 | Yes |
| Roseau River | Roseau | 16343224 | 38 | \$1,800,000 | Yes |
| Kingsbury Creek | St. Louis | 04915210 | 7 | \$555,500 | Yes |
| Tischer Creek | St. Louis | 05014203 | 9 | \$1,000,000 | Yes |

Parcel Map



- Protect in Easement
- ▲ Protect in Fee with PILT
- Protect in Fee W/O PILT
- ★ Restore
- ✕ Enhance
- ⊕ Other